

## **ABSTRACT OF THE INVENTION**

An apparatus for atmospheric and sub-atmospheric processing of a wafer comprising an atmospheric transfer chamber having a first wafer handler contained therein and a sub-atmospheric transfer chamber having a second wafer handler contained therein. A first load lock is coupled to the sub-atmospheric transfer chamber and to the atmospheric transfer chamber. An integrated particle monitoring module for monitoring particles on a wafer surface is coupled to the atmospheric transfer chamber. A first sub-atmospheric process module selected from the group consisting of a CVD deposition module, a sputter module, an oxidation module, and an anneal module is coupled to the sub-atmospheric transfer chamber.